

COMMON CLINICAL DIAGNOSES AND CONDITIONS**SHOCK****INTRODUCTION**

Early recognition and treatment of shock is imperative in improving the outcomes of critically ill children. The American Heart Association categorizes shock into four basic forms: hypovolemic, distributive, cardiogenic, and obstructive. Shock results from inadequate tissue perfusion to support metabolic demands. This may be caused by an inadequate supply of oxygen to the tissues or an increased demand of the tissues for oxygen. As a result, cellular hypoxia, anaerobic metabolism, and dysregulation result in irreversible cell damage and death. Pediatric hospitalists often encounter children with all forms of shock and should be adept at recognition and basic management of shock to improve outcomes.

KNOWLEDGE

Pediatric hospitalists should be able to:

- Discuss the pathophysiology of tissue hypoxia including hypoxemia, anemia, and ischemia.
- Describe the components of tissue oxygen delivery, focusing on cardiac output.
- Describe common diseases and conditions associated with the four forms of shock.
- Compare and contrast the presenting signs and symptoms of the four forms of shock, attending to differences in heart rate, blood pressure, pulses and peripheral perfusion, mental status, and urine output.
- Discuss compensatory mechanisms of early shock including increased heart rate, stroke volume, and vascular smooth muscle tone.
- List indications for chronotropic, inotropic, and blood pressure support and describe the mechanisms of action for these classes of medications.
- State the commonly performed diagnostic studies (such as lab, radiographic, and other) which aid in determining the extent or form of shock.
- Summarize the approach toward stabilization of each form of shock.

SKILLS

Pediatric hospitalists should be able to:

- Perform an initial rapid assessment using Pediatric Advanced Life Support skills.
- Recognize signs of early shock and respond with appropriate actions.
- Appropriately order and correctly interpret results of common studies to determine the extent of shock such as complete blood count, chemistries, blood gas, radiography and others.
- Appropriately order and correctly interpret results of studies to determine the cause of shock and respond with appropriate actions.
- Order appropriate monitoring and correctly interpret monitor data.
- Correctly recognize cardiomegaly and other signs of congestive heart failure on chest radiograph.
- Correctly identify the form of shock from a focused history, physical examination and initial diagnostic studies.
- Initiate appropriate interventions based on the form of shock.
- Facilitate effective transfer to a tertiary care center or intensive care setting when appropriate.

ATTITUDES

Pediatric hospitalists should be able to:

- Communicate effectively with emergency room and intensive care staff to ensure appropriate care for patients in shock.
- Listen effectively and respond to concerns of the family/caregiver and healthcare providers regarding changes in physiologic parameters including vital signs, mental status, physical examination, and urine output.
- Provide family/caregiver support and education on the nuances and complexities of the various forms of shock and the importance of careful monitoring and evaluation.

SYSTEMS ORGANIZATION AND IMPROVEMENT

In order to improve efficiency and quality within their organizations, pediatric hospitalists should:

- Work with hospital administration, hospital staff, subspecialists, and other services to advocate for an educational program for healthcare providers on the importance of early recognition of shock to prevent end-organ failure and death.
- Lead, coordinate or participate in the development and implementation of rapid response systems to assist in recognition and stabilization of early shock.
- Collaborate with hospital administration and community partners to develop and sustain local AHA Pediatric Life Support classes where descriptions and case scenarios provide a comprehensive knowledge base and intervention plan for various types of shock.
- Lead, coordinate or participate in efforts to partner with simulation centers to assist in acquiring skill sets needed for appropriate recognition and intervention for children in shock.

Not for Distribution